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STUDIES IN NEOTROPICAL MALLOPHAGA XII (PART 4)

LICE OF THE TINAMOUS

by

M. A. Carriker Jr. (1)

Resumen

ESTUDIOS DE MALLOPHAGA NEOTROPICALES XII *(PARTE 4). LOS PIOJOS DE LOS TINAMIDAE.* En este trabajo, el cuarto de la serie del autor sobre Mallophaga de Tinamiidae, se dan notas críticas y correcciones de las especies descritas hasta 1944 y se describen por primera vez las siguientes especies y subespecies nuevas de los géneros *Rhopaloceras* Taschenberg y *Heptapsogaster* Carriker de la subfamilia Heptapsogastrinae: *R. variegatus, R. v. undulatus* y *R. cinereus; H. favus, H. mandibularis albigularis, H. temporalis sinuensis, H. t. brasiliensis* y *H. t. julius.*

This is the fourth of a series of papers wich deal entirely with the Mallophaga of the avian family Tinamiidae, giving critical notes and corrections on species already described by me and other authors, up to 1944, and descriptions of new species acquired since the publication of my second large report (Stud. in Neotr. Mall. III; U.S. Nat. Mus., vol. 95, N° 3180, pp. 81-233).

Parts 1 and 2 of this series were published in the REVISTA BRASILEIRA DE BIOLOGIA, (13) 3, Oct., 1953 and (13) 4, Dec. 1953. Part 3 appeared in this Journal (Vol. XI, N° 2, 1955), and it is to be hoped that the remaining papers of the series will also appear in the BOLETIN DE ENTOMOLOGIA VENEZOLANA.

The present paper treats the genera *Rhopaloceras* Taschenberg and *Heptapsogaster* Carriker.

(1) Popayán, Colombia.

SUBFAMILY **HEPTAPSOGASTRINAE**

GENUS *RHOPALOCERAS* TASCHENBERG

Rhopaloceras carrikeri EICHLER, 1947

Rev. Entom., Rio de Janeiro, Vol. 18, p. 171. *Nomen novum* for *oniscus* CARRIKER, 1936; *R. oniscus* (NIT.) CARRIKER, Stud. Neotr. Mall. I, 1936, p. 107; Stud. Neotr. Mall. III, 1944, p. 134 (Host: *Tinamus t. tao*, Laguna de Aroa, Venezuela and Tierra Nueva, Sierra Perijá, Colombia).

The hosts of the above specimens were wrongly identified as *Tinamus t. tao*, being in fact, *Tinamus tao septentrionalis* BRABOURNE & CHUBB. Dr. EICHLER has called attention to this fact and affirms that the specimens called by me *R. oniscus* (NIT.) are not that form, differing from *oniscus* in certain characters, chiefly in smaller size.

Dr. HOPKINS, in a footnote on page 322 of the 1952 List of Mallophaga calls attention to the fact that this difference in size is due to the error in all measurements in my 1936 report, a fact to which I have called attention several times.

Unfortunately, I have not seen Dr. EICHLER's paper and do not know the exact differences on which he bases his contention. Dr. HOPKINS, however seems to think that there was no necessity for renaming the material from *T. t. septentrionalis*. Since it has been included in the list, as possibly being valid, I shall recognize it for the time being, at least until I can compare this material with specimens from *T. t. tao*.

Rhopaloceras laticeps bonaparti CARRIKER, 1944

Proc. U.S. Nat. Mus, vol. 95, Studies in Neotr. Mall. III, p. 139 (*Nothocercus bonapartei* (G. R. GRAY), Sierra Perijá, Colombia).

I have no further information to give regarding this species. In adittion to material previously listed I have taken 1 ♂ from the type host at Belén, Dept. Huila, and 2 ♂♂ from same host at Rio Samaná, Antioquia, Colombia. These three males are exactly like the type series in all respects.

Rhopaloceras genitalis genitalis CARRIKER, 1936

Stud. Neotr. Mall. I, p. 110 (Host: *Tinamus serratus ruficeps*).
The correct name for the host of this species (due to changes in nomenclature) is now *Tinamus major zuliensis* OSGOOD & CONOVER.

I have five females of this species from *Tinamus major perurianus* (BONAPARTE) (formerly known as *T. serratus*), collected at Todos Santos, Río Chapáre, Bolivia, which are inseparable from the females of the type series. Unfortunately no male was taken and until the genitalia of the male from Bolivia can be examined, these specimens must be called *R. g. genitalis* CARRIKER.

Rhopaloceras genitalis simplex CARRIKER, 1936

Stud. in Neotr. Mall. I, p. 111, pl. XV, figs. 1 to 1c. (Host: *Tinamus major castaneiceps* SALVADORI, Pozo Azul, Costa Rica).

I have a large series of this genus taken on numerous specimens of *Tinamus major saturatus* GRISCOM, in various parts of the Departamentos of Bolivar, Antioquia and Chocó, Colombia. A very careful comparison was made between this series and specimens of both *R. g. genitalis* and *R. genitalis simplex*, with the result that they are very close to *simplex*, somewhat intermediate between the two, but on the whole much closer to *simplex*.

The specimens from *T. major saturatus* are the largest of the three groups, with typical *genitalis* the smallest, and not a great deal of difference between those from *saturatus* and *castaneiceps*. The male genitalia is practically the same as that of *simplex*, as well as the terminal abdominal segment in the female. On the whole, the differences between the two are entirely too small to warrant a separation, so that the specimens of *Rhopaloceras* found on *Tinamus major saturatus* may be known as *R. genitalis simplex* CARRIKER.

I wish to call attention to a slight error in the figure of the male genitalia of this species, as figured in 1936. The figure

shows the tips of the paramers bent *inward,* but this is incorrect. They should bend *outward,* the same as in *R. g. genitalis.*

Comparative table of measurements of typical *genitalis, simplex* and specimens from *Tinamus major saturatus.*

	R. g. genitalis				*R. genitalis simplex*			
	♂		♀		♂		♀	
	length	width	length	width	length	width	length	width
Body	3.36	—	4.12	—	3.71	—	5.10	—
Head *frons*	—	.93	—	1.02	—	.98	—	1.10
Head temples	1.23	1.91	1.41	1.98	1.35	2.04	1.46	2.26
Head occiput	1.01	—	1.11	—	1.04	—	1.17	—
Prothorax	.435	1.13	.48	1.24	.48	1.16	.55	1.33
Pterothorax	.716	1.42	.836	1.58	.836	1.45	.90	1.74
Abdomen	1.61	1.45	2.52	1.69	1.80	1.52	3.00	1.98
Antennae	.716	.13	.53	.087	.82	.13	.61	.12
Basal plate	1.33	.217			1.32	.22		
Paramers	.21	.21			.28	.22		
Endomera	.25	.15			.33	.163		

R. genitalis simplex from *Tinamus major saturatus*

	♂		♀	
	length	width	length	width
Body	3.93	—	5.49	—
Head *frons*	—	1.04	—	1.23
Head temples	1.33	1.98	1.55	2.45
Head occiput	1.05	—	1.20	—
Prothorax	.55	1.23	.586	1.41
Pterothorax	.825	1.54	.97	1.91
Abdomen	1.99	1.65	3.23	2.06
Antennae	.76	.15	.67	.11
Basal plate	1.37	.24		
Paramers	.217	.23		
Endomera	.28	.19		

Rhopaloceras laticeps laticeps (Piaget), 1880

Figs. 1-4.

Goniodes laticeps Piaget, Pediculines, p. 259, pl. 21, fig. 6 [Host: *Nothocercus julius* (Bonaparte)].

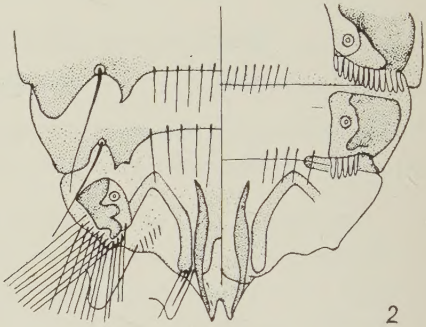
A series of 7 ♂♂ and 3 ♀♀ were taken at Alto del Pozo, Santander N., from a pair of the type host, and 2 ♂♂ and 4 ♀♀ and 2 nymphs from another pair of same host, shot above Bucaramanga, Santander S., Colombia.

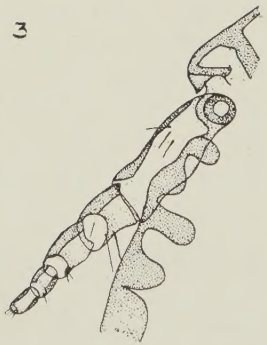
This seems to be the first record for the taking of the species since it was described by Piaget. As would be expected, I find it similiar in many respects to both *R. l. abbreviatus* Carriker and *R. l. bonaparti* Carriker, but it is decidedly larger than either of those subspecies, while there are other small differences, including the male genitalia and apical segment of the abdomen in the female.

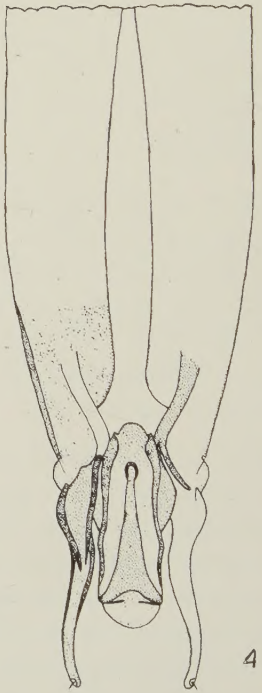
There is no question but what *laticeps, abbreviatus* and *bonaparti* are conspecific, but all three are subspecifically distinct. *R. l. laticeps* is very much larger than *bonaparti* in all measurements. The number of teeth in the abdominal combs of the male are very close to *bonaparti,* but in the female there are many more (28 against 17; 20 against 16; 18 against 16; 14 against 11; and 5 against 4).

The male genitalia are very different from those of *bonaparti,* but close to those of *abbreviatus* (see fig.). Compared with *abbreviatus* the teeth of the abdominal combs are sligthly more numerous in the male in segments II and III, about the same in IV and V and less in VI. In the female of *laticeps* there are a few more in II and III, with the remainder about the same. As regards size, *laticeps* is considerably larger in all measurements of both sexes than the corrected measurements for *abbreviatus.*

Measurements for *R. l. laticeps* (Piaget) and *R. l. abbreviatus* Carriker (corrected):







Figs. 1 - 4.—*Rhopaloceras l. laticeps* (PIAGET).
(1) ♂ Head and thorax
(2) ♀ Tip of abdomen
(3) ♂ Antennae and *conus*
(4) ♂ Genitalia

		♂		♀		♂		♀	
		length	width	length	width	length	width	length	width
Body		3.78	—	5.00	—	3.14	—	4.25	—
Head	*frons*	—	1.04	—	1.19	—	86	—	.96
	temples	1.34	1.92	1.50	2.21	1.11	1.54	1.20	1.87
	occiput	1.04	—	1.12	—	.91	—	1.02	—
Prothorax		.52	1.25	.586	1.41	.41	.96	.52	1.19
Pterothorax		.65	1.47	.76	1.66	.71	1.26	.825	1.50
Abdomen		2.08	1.80	3.19	2.10	1.64	1.41	2.21	1.63
Antennae		.73	.14	.586	.13	.60	—	.48	—
Basal plate		1.52	.28			1.30	.24		
Paramers		.28	.17			.24	.174		
Endomera		.26	.11			.20	.11		

Number of teeth in abdominal combs for *R. l. laticepss*

	male		female	
	left	right	left	right
I —	18	20	28	27
II —	16	14	20	20
III —	12	14	17	18
IV —	10	10	14	13
V —	3	3	5	5

Rhopaloceras heterogenitalis CARRIKER, 1944

Figs. 5-C; 6-D and C.

Studies in Neotr. Mall. III, (Proc. U.S. Nat. Mus. vol. 95, N° 3180, p. 136 (Host: *Crypturellus b. boucardi* (SCLATER), Cerro Tuxtla, Veracruz, México).

This species of *Rhopaloceras,* together with its subspecies *spatulata* CARRIKER, may be distinguished from all of the other known forms of the genus by the male genitalia. Apparently this type of the genus is found on many of the larger sized species of the genus *Crypturellus,* although this assertion cannot be proven until the males are secured. I have females of the genus from *Crypturellus v. variegatus, C. c. cinereus, C. u. undulatus* and *C. undulatus yapura,* but unfortunately no males from any of these hosts. *Crypturellus noctivagus,* while falling into this group of hosts, possesses a species of *Rhopaloceras*

with quite a different type of genitalia (*R. almeidai* GUIMARAES), and it is possible that some of the females which I have will be found to have males with a similiar type of genitalia as *almeidai*.

However, their relationships are very close to the *heterogenitalis* group, and while fairly close to each other, the females may be easily separated by a combination of characters. The females from *Cr. c. cinereus* are, I believe, specifically distinct from the other, and I have designated it as a distinct species, at least until the male is known.

The single female from *Crypturellus undulatus yapura* cannot be separated from the females from *C. v. variegatus*, and without the male sex it must be called the same.

Considering the fact that most of the species of this genus are superficially very much alike, and may be only separated on comparatively small characters and the male and female genitalia, it seems best to give some of these females specific rank, at least temporarily.

Rhopaloceras variegatus new species.

Figs. 5-A and 6-A.

Type, female adult, from *Crypturellus v. variegatus* (GMELIN), collected by the author at Pto. Venecia, Int. Caquetá, Colombia, June 2, 1952 (coll. U.S. Nat. Mus.)

Diagnosis.—It is very difficult to properly allocate this specimen specifically without seeing the male genitalia, and while it seems to be close to *heterogenitalis* there are several differences wich may be specific, providing the male genitalia proves to be different, so that it seems best to give it specific rank, at least temporarily. It is considerably larger in all measurements than *heterogenitalis*, except length of mesothorax (see table of measurements). The number of teeth in the abdominal combs is similiar. The head differs considerably in shape, the *frons* being more conical; the sides of the temples are concave instead of convex and the posterior margin is much more convex. The mesosternum differs both in shape and chaetotaxy, and the

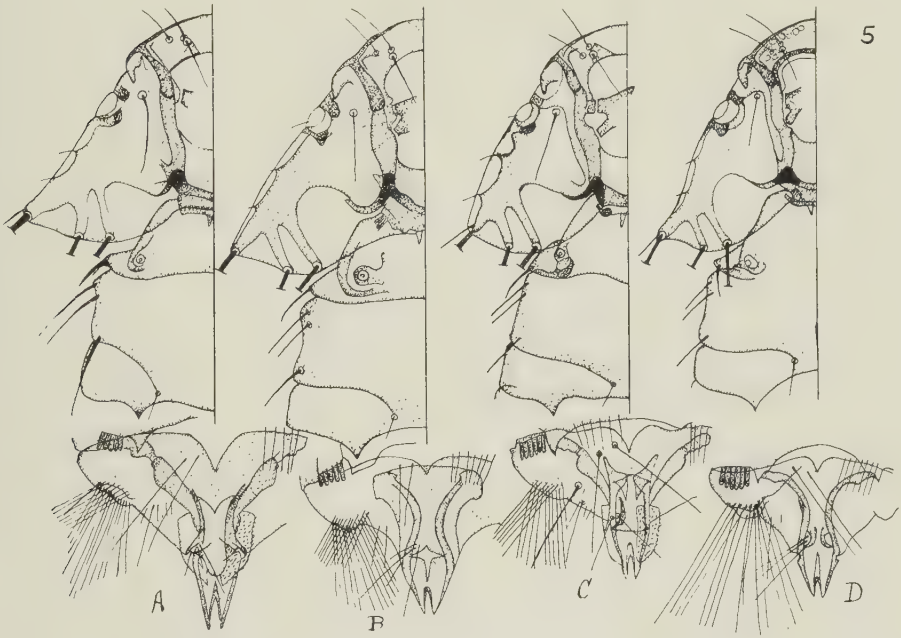


Fig. 5.—Head, thorax and apical segment of abdomen of females of *Rhopaloceras:*

(A) *variegatus* n. sp.; (B) *cinereus* n. sp.;

(C) *heterogenitalis* CARRIKER; and (D) *variegatus undulatus* n. subsp.

genitalia (apical abdominal segment) differs rather strongly in structure. The accompanying figure will illustrate these differences better than a long description.

Not having the male it is impossible to make an intelligent comparison between this species and *heterogenitalis* and *almeidai* GUIMARAES.

However, *variegatus* is smaller than the female of *almeidai*, but with only slight differences in number of teeth in abdominal combs (16-15 against 17-17; 14-14 against 14-14; 14-14 against 13-13; 11-11 against 10-10; and 5-5 against 7-8).

The *frons* is more conical in *variegatus;* the *coni* are longer and more slender; sides of temples in *variegatus* decidedly concave and straight in *almeidai,* while posterior margin is less convex in *variegatus.* The apical segment of abdomen is also decidedly different in shape and detail of structure.

As may be seen from the accompanying figures the head of *variegatus* differs much in shape from that of *heterogenitalis,* also the shape of the prothorax and the apical segment of the abdomen, as well as the shape and chaetotaxy of the mesosternum. Both species posses a peculiar structure of the apical abdominal segment, not found in either of the other two forms (*cinereus* and *undulatus* described on succeeding pages), which consists of a membraneous covering (apparently ventral) thickly covered with minute spicules.

There is also a single female from *Crypturellus u. undulatus* (Chatarona, Bolivia) and another from *Cr. undulatus yapura* (Shapája, Perú) which are close to *variegatus,* the latter differing so little that it is not possible to separate it without more material, but the one from *C. u. undulatus* differs sufficiently to merit subspecific recognition on the characters of the female alone. Measurements for *variegatus* follow description of the next subspecies.

Rhopaloceras variegatus undulatus new subspecies.

Fig. 5-D.

Type, female adult, from *Crypturellus undulatus undulatus* (Salvadori), collected by the author at Chataróna, Rio Beni, Bolivia, September 16, 1934 (in coll. of author).

Diagnosis.—Differs from *variegatus* in having a narrower head with temples differently shaped (see figs.); differently shaped pterothorax, longer teeth on abdominal combs, and the combs themselves are heavier and more curving, while the triangular projections on the posterior margin of the tergites are larger and differently shaped.

The whole apical abdominal segment is much smaller, with the detailed structure of the genitalia entirely different.

The shape, structure and chaetotaxy of the mesosternum is also different (see fig.). It differs from *almeidai* in the structure of the apical segment of the abdomen, and in having much longer *coni,* and the head is narrower (.80 × 1.43 against .87 × 1.76). There is no trace of the spiculated membrane covering apical segment of abdomen, as in *variegatus* and *heterogenitalis.* There is a possibility that this form is more closely related to *almeidai* GUIMARAES than to *variegatus,* but to determine this point the male genitalia must be seen.

Measurements of the females of *R. v. variegatus, R. variegatus undulatus* and *R. cinereus*:

		length	width	length	width	length	width
	Body	3.86	—	3.52	—	3.95	—
Head	*frons*	—	.77	—	.716	—	.86
	temples	1.02	1.72	1.04	1.45	1.16	1.76
	occiput	.84	—	.80	—	.93	—
	Prothorax	.41	1.00	.36	.94	.43	1.07
	Pterothorax	.69	1.26	.71	1.13	.71	1.34
	Abdomen	2.35	1.41	1.97	1.21	2.27	1.50
	Antennae	.456	.087	.40	.07	.48	.08

Number of teeth in abdominal combs.

	heterogenitalis		*variegatus*		*undulatus*		*cinereus*		*almeidai*	
	left	right	left	right	left	right	left	right	left	right
Segment I	18	18	16	15	18	18	20	20	17	17
" II	16	15	14	14	17	15	17	16	14	14
" III	13	13	14	14	14	13	13	15	13	13
" IV	12	11	11	11	12	12	12	12	10	10
" V	5	6	5	5	6	7	5	5	7	8

Rhopaloceras cinereus new species.

Figs. 5-B and 6-B.

Type, female adult, from *Crypturellus c. cinereus* (GMELIN), collected by the author at Pto. Venecia. Int. Caquetá, Colombia, June 13, 1952 (in coll. U.S. Nat. Mus.)

Diagnosis.—The male is unknown, hence difficult to allocate specifically. It seems to fall into the *heterogenitalis* and *variegatus* group, but since all of the known Mallophaga from this host are specifically distinct, it seems only logical that its representative of *Rhopaloceras* would also be specifically distinct.

It is larger even than *variegatus* in all measurements except the length of metathorax, which is a trifle less (.21 × 1,34 against .22 × 1,24). The shape of the head is similiar to that of *heterogenitalis,* except that the temples extend further posteriorly, and the *coni* are also *similiar,* being short and slender.

The shape and chaetotaxy of the mesosternum is distinct (see fig.) as well as the female genitalia (see fig.). The number of teeth on the abdominal combs exceeds those of *variegatus,* but is close to *heterogenitalis.* In some ways the female genitalia is similiar to that of *undulatus,* in fact resembles it more than any of the other forms here treated, but it nevertheless differs considerably in some details.

This species is represented by the ♀ holotype and 2 ♀♀ paratypes.

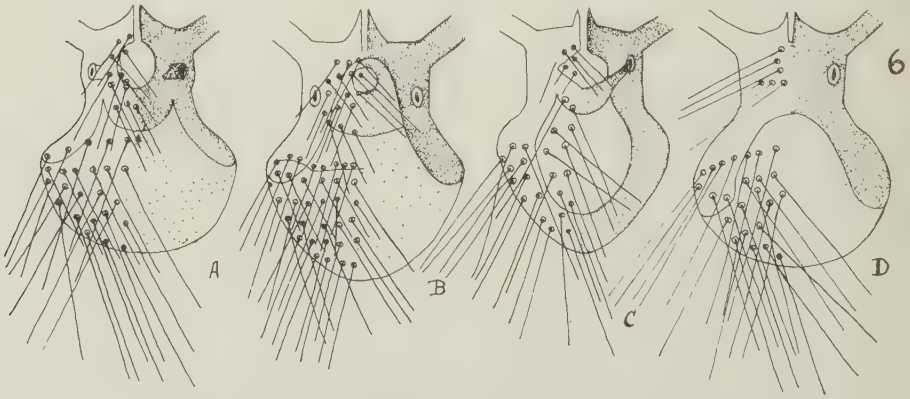


Fig. 6.—Mesosternum of *Rhopaloceras:* (A) *variegatus* n. sp.; (B) *cinereus* n. sp.; (C) *heterogenitalis* CARRIKER; and (D) *h. spatulata* CARRIKER.

Rhopaloceras rudimentarius CARRIKER, 1936

Fig. 7-A to E.

Studies in Neotr. Mall. I, p. 113, pl. XIV, figs. 1 to 1c [Host: *Crypturellus soui nigriceps* (CHAPMANN)]

The male sex of this species is recognized at a glance by the very peculiar type of genital armature, but the females are not so easily recognized and may be confused with females of some of the other forms, yet there is a combination of certain characters which are uniform in *all* female specimens of *rudimentarius*, and which are not found in any other species I have seen, which are: the structure and chaetotaxy of the genitalia and the shape of the triangular projections on the posterior margin of abdominal tergites I to V, just inside the combs, and separated from the combs by a deep, circular emargination in which is set a long, strong hair.

In *rudimentarius* these projections are rather small, triangular and sharply pointed on tergite I, but become progressively larger and wider posteriorly, being much wider than long on V where the point is replaced by a right angle on outer side.

It is now quite certain that this species is found *only* on the various races of *Crypturellus soui* and I now have specimens of it from the following subspecies: *nigriceps* (type host), *inconspicuus*, *modestus*, *mustelinus*, *soui*, *caucae*, *harterti*, *caquetae* and *albigularis*. Two females which I had previously recorded from *C. u. undulatus* and *C. undulatus yapura* as being this species, I now find, after more careful study, to be different species, and they have been treated on previous pages in this paper.

In comparing these specimens from all of the different hosts I find quite a number of small differences, some of which are probably only individual variation, while others may possibly be of subspecific value, but to try and separate them into subspecies seems to be an unwarranted and unnecessary procedure, at least not until much more material is available for study, in order to determine with certainty which of the variable characters are merely individual and which are constant.

There is, for example a great variation in the shape and length of the *conus*. Most of the material examined have an unusually long, slender, pointed *conus*, bent inward, but in others it is short, thick basally and pointed, and a third, which is of medium length, slightly curved inward, and also pointed (see figs. of *coni*).

However, to further complicate matters, specimens from different individuals of the same host species, have quite a different type of *conus*. In specimens from *s. mustelinus*, for example, 5 ♂♂ and 5 ♀♀ from the Sierra Perijá (Colombia), *all* have the long, slender *coni*, while 4 ♀♀ from across the valley, at the base of the Sierra Nevada, and 4 ♂♂ from Santander N., all have the *coni* short, thick basally and pointed (see fig. C).

All specimens from *s. meserythrus* (Mexico); *harterti* (N.W. Colombia); *modestus* (Costa Rica); *inconspicuus* (Bolivia) and *albigularis* (Brazil) have the long type (fig. A), while those from *caucae* (Colombia) possess both long and short, and lastly, the type series from *nigriceps* (Peru) are medium (fig. B).

It may be also noted that the antennary bands are slightly different with the three types of *coni*. The male genitalia is practically the same in all specimens examined, any slight variation among them being entirely too small for recognition. The original figure of the male genitalia for this species (Stud. Neotr. Mall. I, pl. XIV, fig. 1c) while not incorrect, lacks certain interesting details, and a new figure is here shown.

It will be noted that there is a membraneous sac surrounding the greater portion of the working parts of the genitalia, and which is thickly covered with minute spicules on the lateral portion, while the distal tip is striated and with edge saggitate. Unless the genitalia is extruded it is usually difficult to observe this sac, and even if the genitalia is extruded, the sac has often been so badly ruptured as to be unrecognizable. There are also variations in the number of teeth in the abdominal combs, as well as in body measurements. The number of teeth in the combs is exceedingly variable, even in specimens from the same individual host, both as to right and left side and the different segments. I have yet to see a single louse of this genus with the same number of teeth on both sides in all of the segments.

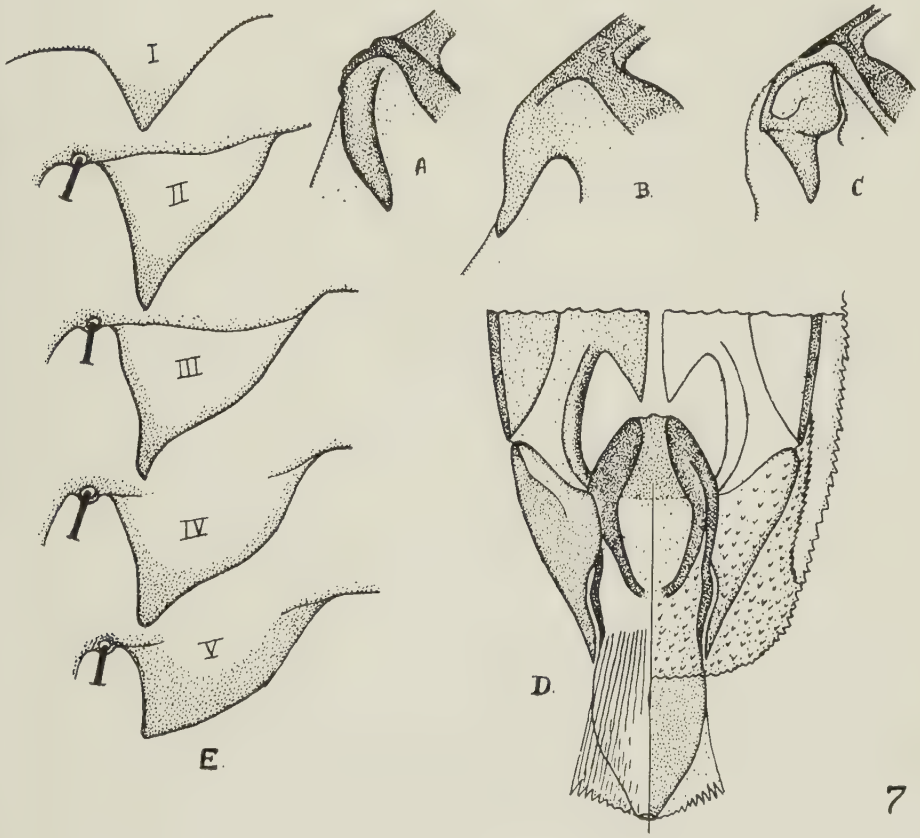


Fig. 7.—*Rhopaloceras rudimentarius* CARRIKER:

(A) *Conus* of ♀ from *Cr. soui caquetae;*

(B) *Conus* of ♀ from *Cr. soui nigriceps;*

(C) *Conus* of ♂ from *Cr. soui mustelinus;*

(D) Genitalia of ♂ from *Cr. soui mustelinus;*

(E) Angular projections on posterior margin of tergites I to *V* of ♀ from *Cr. soui caquetae.*

Specimens from *caquetae* (Int. de Caquetá, Colombia) are the smallest of all examined, with a smaller head and less number of teeth in abdominal combs. The head measurements for males (from the different races of *soui*) run from .84 × 1.28 (temples) to .93 × 1.41; *frons* from .64 to .716 and length at occiput from .69 to .77. The maximum in size are those from the type host (*nigriceps*), while the others range between these extremes.

The smallest *coni* (♂) measures .026 × .032 and the largest (♂) is .035 × .108, with ♀ from same host .035 × .013. It may be readily seen from a study of the above data that any attempt to subdivide this species into races presents a series of difficulties which the author does not care to undertake, so that for the present I propose to call them all merely *R. rudimentarius* Carriker.

At this point I wish to make a few general remarks on nomenclature before taking up the next genus of this group.

The recent appearance of the new Check List of Mallophaga by Hopkins ann Clay (1952) has, indeed, filled a long felt want, and all workers on this group should be more than grateful to the authors for the years of painstaking labor spent in its preparation.

As for myself, I appreciate very much the assistance which it has been to me, but unfortunately, like all labors of this kind, there are always certain things with which all others workers do not agree, and I find myself, much against my personal wishes, one of the dissenters.

I wish at this time to refer especially to the genus *Heptapsogaster* and several other genera closely allied to it, which have, in my opinion, received very arbitrary treatment in the Check List. The genus *Heptapsogaster* has now become merely a dumping ground for all of the closely allied forms which resemble, more or less, the group of species upon which the genus was originally based. The same thing may be said of the genus *Amyrsidea* (Menoponidae of the Galliformes).

The question of what does, or does not constitute generic characters in zoological nomenclature in general has been discussed

ad infinitum, but after all of this discussion, almost everyone will agree that, basically, it reduces itself to *one thing*, the *personal opinion* of the particular worker concerned. If the scientist is an ultra-conservative the result will be the lumping of all closely related genera, and if he (or she) is an ultra-liberal, the opposite will be the result, a genus for every slightly aberrant species.

The same thing has taken place in the systematics of Ornithology, with which I am thoroughly familiar, and doubtless the same may be said of other branches of zoology. A brief survey of the systematics of Ornithology covering the past sixty years shows that the pendulum of individual opinion has been swinging back and forth, and will, apparently, never become wholly stationary, and now the same thing has taken place with the Mallophaga. I have always tried to follow a middle course, never in favor of either extreme. I have never been able to understand what advantage was to be gained by combining a heterogenous lot of species in one genus where it is an absolute impossibility to formulate a clear, concise description of the characters on which the genus is based.

It is perfectly true that there are many species (especially in Mallophaga) which are extremely difficult to allocate generically, for the simple reason that many species (even genera) of these parasites have dissappeared over the unbelievably long period of time which has elapsed since the group first appeared. Also, there must be many species of Mallophaga which are still unknown, and which, if secured, would fill some of the gaps in our present knowledge of the group. Taking all of this into consideration we will concede that there are many aberrant forms, apparently on the border-line between two homogenous groups of species, and which may possess characters common to both of those groups, but is that sufficient reason for combining two quite homogenous groups of species just because there happens to be one or more scattered species which *seem* to form connecting links between the two definitely separable groups?

It is claimed by the ultra-conservatists that by the use of smaller genera the relationships between the groups are lost, but I fail to see the logic of this concept. Generally speaking it is not

advisable to erect monotypic genera, but as we all know there are many cases where this is unavoidable. However, when we have a perfectly homogenous group of species, all parasitic on one avian family or a group of allied genera, and with perfectly clear-cut anatomical characters separating them from other closely related groups of species, why in the name of Socrates may they not be kept generically separate?

If there are aberrant species (and there usually are) which possess characters pertaining to both groups, why not place such species with the group which they more nearly resemble, stating the fact that they are aberrant species?

I shall endeavor to follow out this concept in my systematic treatment of the Mallophaga, even though it will mean stepping on the systematic toes of several esteemed colleagues, and I trust that there will be no hards feelings on their part. After all, each worker is entitled to his own individual opinion, based on the material which is at his disposal, and in the present instance the material on which the following treatment of certain groups of Tinamou lice is based, proves to be unusually complete.

GENUS *HEPTAPSOGASTER* Carriker, 1936

The original characterization of this genus is complete and correct, according to my recent studies of this group, with one slight exception, as follows.

The original characterization states: "Metathorax with sides sometimes largely exposed between the mesothorax and lst. abdominal segments, but in others nearly the whole segment is embedded within the abdomen."

This paragraph will be changed to read as follows: Sides of metathorax *always* completely exposed between the mesothorax and abdomen, with the posterior margin extending unbroken from one side of the abdomen to the other, and forming a slight angle at each side with the lst. abdominal segment. Special stress may be placed on this character (together with the shape of the head) for separating the genus *Heptagsogaster* from *Rhyncothura* and

Heptarthrogaster, the latter two genera having been placed under the synonimy of the first by HOPKINS and CLAY in the List.

At this point I may say that the genus *Heptapsogaster* will be restricted to the species *mandibularis*, *temporalis*, *inexpectatus* (= *insperatus* HOPKINS of Check List), and *favus* (described in this paper). The first three species, together with their many subspecies, form a large, very homogenous group.

H. platycephalus, *H. p. asymmetricus* and *H. p. petersi*, originally described under *Heptaptapsogaster*, will be removed to the genus *Megapeostus*, which they more close resemble in the shape and structure of the head and male genitalia. All species originally described under *Rhyncothura* and *Heptarthrogaster* will remain in those genera, while there are certain species described under *Heptapsogaster* which are clearly *Rhyncothura*, and will be placed there. *Heinrothiella inexpectata* and *H. freilingi* of EICHLER certainly cannot be placed in *Heptapsogaster*, since the metathoracic structure precludes such action, that segment being practically obsolete and completely embedded within the 1st. abdominal segment, and fused with it. The head structure is also different, as will be considered in a subsequent paper.

The genus *Tinamicola*, as constituted by me in 1936, contained two species, *Goniocotes rotundatus* RUDOW and *T. latithorax* CARRIKER, both parasites found on *Rhynchotus rufescens*, and it now appears that the two species are not congeneric, *latithorax* having the prothorax of an entirely different type, the metathorax completely embedded within the abdomen and the *frons* with no trace of internal projecting incrassations. *Goniocotes rotundatus* RUDOW is a very puzzling species. Except for the antennae, which are alike in the two sexes, it is close to *Heptapsogaster tesselatus* CARRIKER, from *Nothoprocta*, and I believe that *tesselatus* is more closely related to the *Rhyncothura* group than to *Heptapsogaster*, a remark once made by Miss CLAY. Both *tesselatus* and *rotundatus* are aberrant, border-line species, and should be placed in the genus whose characters they more closely resemble, which in this case is *Rhyncothura*, the details of which will be taken up in a subsequent paper dealing with that genus and *Heptarthrogaster*.

Goniodes sexpuntatus Piaget is also clearly a *Rhyncothura*, and was thus allocated by me in 1936, while *Goniocotes sexsetosus* Piaget, for which I erected the monotypic genus *Docophorocotes* in 1936, must remain in that genus. It is impossible to conceive of placing it in the genus *Heptapsogaster*, as has been done in the Check List.

There are many logical reasons for these decisions, all of which will be explained in detail when these genera are discussed.

GENUS *HEPTAPSOGASTER* Carriker, 1936

Heptapsogaster favus new species.

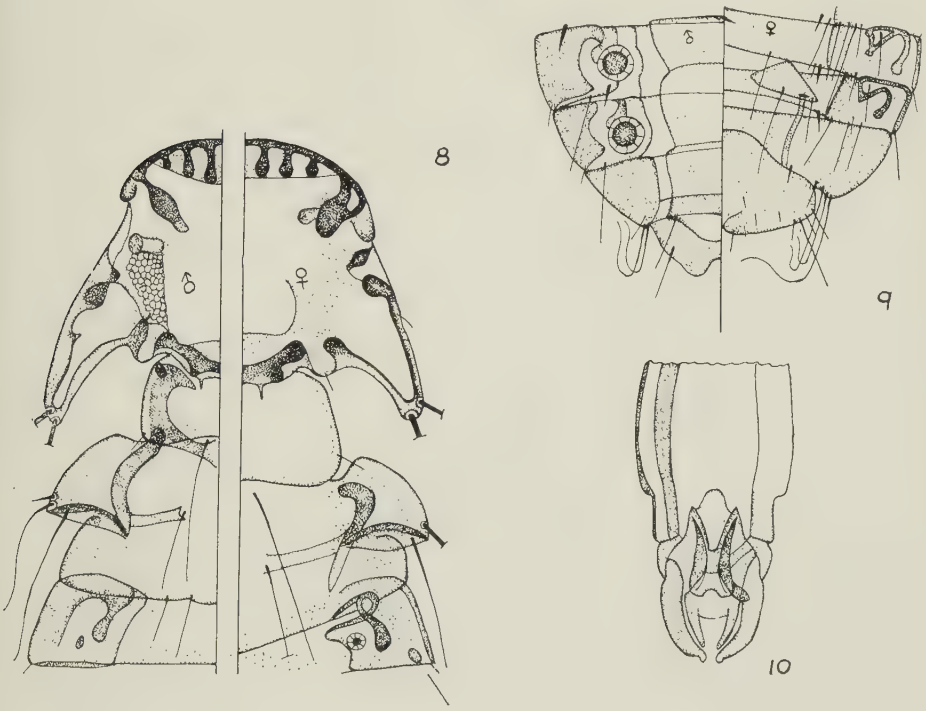
Figs. 8, 9 and 10.

Types, male and female adults, from *Crypturellus v. variegatus* (Gmelin), collected by the author at Puerto Venecia, Caquetá, Colombia, June 2, 1952 (in U.S. Nat. Mus.)

Diagnosis.—More closely related to *temporalis* than to any other species of the genus, with which it agrees in general shape and markings of the head and thorax, although there is a greater sexual dimorphism of the head (see fig.). The male has the large, flowershaped scent glands on pleurites IV and V, as in *temporalis*, even larger than in that species, but in the female the scent gland on pleurite I is not a small, crescent-shaped gland, but a well developed flower-shaped one, about half the size of those in the male.

In the male, abdominal segment VII is long, as in *temporalis*, but has the tip deeply *emarginate*, not rounded, while the same segment in the female is almost transverse posteriorly, somewhat as in the female of *inexpectatus*, and not long and pointed as in *temporalis*. The abdominal chaetotaxy of both sexes is quite different from either *temporalis*, *inexpectatus* or *mandibularis*, and is as follows:

Male: Pleurite I with 1 long hair at inner posterior angle; II with 1 longish hair at inner corner and 1 heavy spine on posterior margin; III with 1 short, slender seta at inner corner and 1 heavy spine on posterior margin; IV with 1 heavy spine just back of scent gland and 1 slender hair at median portion of posterior margin; V with 1 longish and 1 short, fine hair on posterior margin. There is 1 fine seta in postero-lateral angle of pleurites I to V; a longish hair on each side of median line of posterior margin of tergites I to V.



Figs. 8-10.—*Heptapsogaster favus* n. sp.

(8) Head, thorax and abdominal segment I of ♂ and ♀

(9) Abdominal segments IV to VII of ♂ and ♀

(10) ♂ genitalia

The genital sternite is unique, in that it extends from anterior third of segment VII to anterior margin of tergite IV (see fig.).

In the female we have the following: Pleurite I with 1 long, strong hair at inner, posterior angle; II with one hair at inner angle and 2 medially on posterior margin; III with 5 longish, stout hairs on posterior margin (on inner 2/3), including one at angle and a stout spine on tergite just inside the pleurite; IV with 2 longish hairs on median portion of posterior margin and a short, spine-like bristle on tergite, as in III; V with 3 longish hairs on posterior margin, 2 medially and 1 at inner angle; VI with 3 long hairs at posterior tip and 2 short setae inside on margin between VI and VII, also a spine on posterior margin half way inward to anterior tip of VII; VII with 2 longish hairs on each side and several short setae scattered along submarginal area. There is 1 hair, the length of succeeding segment (longer on V) in postero-lateral angle of pleurites I to V; one or two longish hairs on each side of posterior margin of tergites I to V.

The greater portion of the head and body has the integument heavily "tesselated", in some parts the markings are extremely uniform and perfectly hexagonal, resembling exactly the cells of the honey-comb of bees, hence the specific name of *favus*.

Care must be taken in observing the scent glands in this species, and also the races of *temporalis*, which have large glands, since they are easily shrunken or crumpled around the edges due to the action of the clearing agent, as I have noted in the present species, where only 2 glands out of 12 observed (3 males) are in perfect, undistorted condition.

The male genitalia, which are of the type of *H. temporalis*, differ in many details, but are, perhaps, nearest to those of *H. t. acutiventris* Clay, from *Cr. cinnamomeus mexicanus*. A peculiar characteristic of the genitalia is the shortness of the paramers, which are as wide as long and but little more than half the length of the endomera.

The species is represented by the ♂ holotype, ♀ allotype and 2 ♂♂ paratypes.

Measurements of the types:

	♂		♀	
	length	width	length	width
Body	1.04	—	1.01	—
Head *frons*	—	.242	—	.314
Head temples	.34	.415	.337	.434
Head occiput	.282	—	.293	—
Prothorax	.11	.215	.119	.24
Mesothorax	.107	.412	.118	.445
Metathorax	.11	.39	.119	.403
Abdomen	.575	.477	.477	.51
Antennae	.157	.043	.135	.03
Paramers	.056	.058		
Endomera	.092	.04		

Heptapsogaster mandibularis idoneus CARRIKER, 1944

Proc. U.S. Nat. Mus., vol. 95, p. 149, figs. 13c and f (Host: *Crypturellus idoneus* TODD.)

A series of 15 ♂♂ and 12 ♀♀ of this species was taken on two individuals of *Crypturellus columbianus*, collected at Nazaret and Socarré, upper Rio Sinú, Colombia, in Feb. and April. 1949.

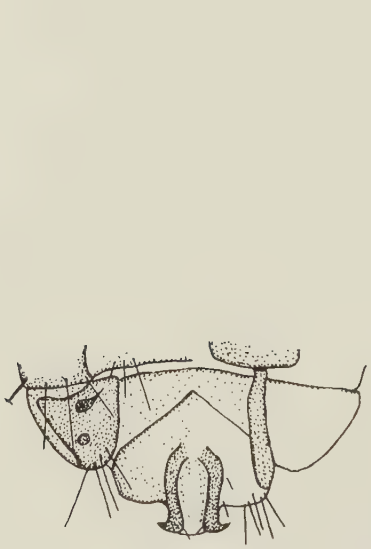
A very careful comparison was made between this series and the types of *idoneus*, and no appreciable differences could be found. All differences in measurements easily fall within the limits of individual variation for this species. The male genitalia differ slightly in the structure of the endomeral plate, but I do not consider this to be sufficient for recognition. Abdominal segment VII of the female is also identical in shape and chaetotaxy, as well as the genital sternites.

Heptapsogaster mandibularis albigularis new subspecies.

Fig. 11 and 12.

Types, male and female adults, from *Crypturellus soui albigularis* (Brabourne and Chubb), collected at Maracajú, Matto Grosso, Brazil, April 13, 1937 (in coll. of G. H. E. Hopkins).

Diagnosis.—Much larger in all measurements than any of the other three races from subspecies of *Cr. soui*. The structure of



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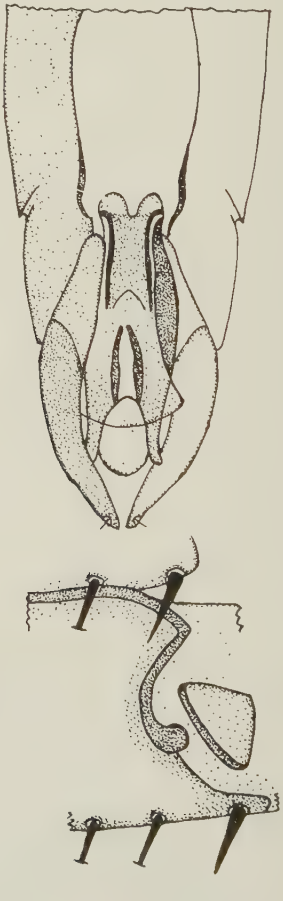

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Figs. 11-12.—*Heptapsogaster mandibularis albigularis* n. subsp.
(11) ♂ genitalia and scent gland
(12) Tip of ♀ abdomen

the ♂ genitalia is very similiar to those of *mandibularis*, but much narrower at the base of the paramers (.12 × .07 against .09 × .08), while the lower portion of the basal plate (encircling base of paramers) is considerably longer (.05 against .035); there are other differences in structure of the endomera.

The head is unusually wide at the temples, being as wide as the mesothorax, while the metathorax at postero-lateral angle is but little narrower than the mesothorax.

The scent glands are quite different from those of either *nigriceps* or *mandibularis* (compare figures). Abdominal segments VI and VII in female are also different, especially in the shape of apical hooks and genital sternite.

The subspecies is not particularly outstanding, but the characters listed above seem to be worthy of subspecific recognition. However, all of the four subspecies of *mandibularis* recognized from races of *Cr. soui* are very closely related, and perhaps with more abundant material for comparison may prove to be inseparable. The present race is represented by the ♂ holotype, ♀ allotype and 1 ♀ paratype.

Measurements of the types:

		♂		♀	
		length	width	length	width
Body		1.28	—	1.56	—
Head	*frons*	—	.323	—	.432
	temples	.39	.54	.423	.586
	occiput	.326	—	.38	—
Prothorax		.14	.293	.152	.328
Mesothorax		.15	.545	.16	.586
Metathorax		.12	.52	.152	.553
Abdomen		.67	.63	.89	.694
Antennae		.24	.054	.195	.043
Paramers		.12	.07		
Endomera		.11	.046		

Heptapsogaster mandibularis modestus (Carriker, 1944

Proc. U.S. Nat. Mus. vol. 95, Nº 3180, p. 141 (Stud. in Neotr. Mall. III) [Host: *Crypturellus b. boucardi* (Sclater)]

One ♂ and two ♀ ♀ of this species were taken on *Crypturellus cinnamomeus sallaei* (Bonaparte), collected by the author at Tres Zapotes, Veracruz, Mexico, Mar. 27, 1940. These specimens are absolutely inseparable from the types of *modestae*. It is rather unusual to find the same race of an *Heptapsogaster* on two species of *Crypturellus*, but there is no possibility of an error in the recording of the host, since it was shot on the day previous to the taking of *boucardi*, from which the types of *modestus* were collected. Each bird was placed in a *different* paper bag with napthaline to kill the lice.

Heptapsogaster mandibularis nigriceps (Carriker, 1944

Proc. U.S. Nat. Mus. vol. 95, Nº 3180, p. 147 (Stud. in Neotr. Mall. III) (Host: *Crypturellus soui nigriceps*).

One ♂ and two ♀ ♀ taken on *Cr. soui caquetae* (Chapmann), collected at Pto. Venecia, Caquetá, Colombia. These specimens are so close to the types of *H. m. nigriceps* that there is no logical reason for attempting their separation. The small differences in measurements fall easily withing the limits of individual variation. The ♂ genitalia are the same in all details excepting the paramers, which are slightly shorter (.076 × .066 against .09 × .066). The endomera is of the same shape, length of apical prongs, and varies but slightly in size (.087 × .038 against .095 × .038). I also find considerable variation in the length of the paramers in other forms of *Heptapsogaster*, even between males from the same bird. The scent gland is exactly the same (a good racial character); the genital plate in the female is also the same, but the apical prongs on segment VII are a little longer.

Heptapsogaster mandibularis motilonensis (Carriker, 1944

Proc. U.S. Nat. Mus. vol. 95, N° 3180, p. 151 (Stud. in Neotr. Mall. III) (Host: *Crypturellus soui mustelinus* Bangs.)

A large series of both sexes taken on several individuals of *Cr. soui caucae* (Chapmann). These are indistinguishable from the type series of *motilonensis*.

Also a pair (♂ ♀) of the same thing were taken from. *Cr. soui harterti* (Brabourne & Chubb) collected at Acandí, Chocó, Colombia, and a series of 2 ♂ ♂ and 3 ♀ ♀ from *Cr. soui caquetae* (Chapmann), collected at Pto. Venecia, Caquetá, Colombia. This whole series is very uniform.

Heptapsogaster stultus noctivagus Clay, 1937

P.Z.S., London, Ser, B, pt. I, p. 138 (Host: *Crypturellus n. noctivagus* (Wied.), Brazil.

This species, as described by Clay, is clearly a composite one the male being undoubtably her *stultus* (= *inexpectatus* Carriker and *insperatus* Hopkins), while the female is certainly a race of *mandibularis*, as the description itself clearly verifies.

I have a single ♂ from this host which is a typical *inexpectatus* (= *stultus* of Clay) and it clearly agrees with Clay's description of her species from *noctivagus*.

The female of *H. stultus noctivagus* Clay being a race of *mandibularis*, is, therefore without a name, and I propose for it the name of *Heptapsogaster mandibularis clayi* **nomen novum** for the female of *H. stultus noctivagus* Clay, 1937.

Heptapsogaster mandibularis idoneus (Carriker, 1944

Proc. U.S. Nat. Mus., vol. 95, N° 3180, p. 149 (Host: *Crypturellus idoneus* (Todd).

Two ♂ ♂ and five ♀ ♀ of this race of *mandibularis* were taken on *Crypturellus saltuarius* Wetmore, at Ayacucho, Santander N., Colombia, June 9, 1943 (the type of *saltuarius*).

This host was previously identified in the field as *Cr. idoneus*. These parasites are inseparable from the types of *H. m. idoneus*.

All of the other species of Mallophaga taken on *Cr. saltuarius* have proved to be identical with the same species taken on *Cr. idoneus*, proof positive that these two birds are very closely related.

Heptapsogaster temporalis femininus Carriker, 1936

Proc. Acad. Nat. Sci. Phila. 88, p. 120 (Host: *Crypturellus cinereus cinerascens* Carriker = *Cr. cinerascens cinerascens* (Gmelin), *fide* Conover).

A series of 14 females of this species was taken on the type host collected at Pto. Venecia, Caquetá, Colombia, June 6th, 1952. Unfortunately no males were secured, but the females cannot be distinguished from the paratypes of *femininus* now in my collection.

Heptapsogaster temporalis nothocercae Carriker, 1944

Proc. U.S. Nat. Mus. vol. 95, Nº 3180, p. 161 (Host: *Nothocercus b. bonapartei* G. R. Gray)

Four ♂♂ and eight ♀♀ of this species were taken on a pair of the type host collected at Rio Samaná, Caldas, Colombia, May, 16, 1951, and one ♀ from *N. bonapartei intercedens* Salvadori, collected above Frontino, Antioquia, May 25, 1950. These specimens are inseparable in every way from the types of the subspecies. Neither can I detect any appreciable differences between this series from *N. b. bonapartei* and a series of 2 ♂♂ and 5 ♀♀ from *Nothocercus nigrocapillus* G. R. Gray, from Bolivia, in the collection of Col. Emerson.

Heptapsogaster temporalis boucardi Carriker, 1944

Fig. 13 a

Proc. U.S. Nat. Mus. vol. 95, Nº 3180, p. 159 (Host: *Crypturellus b. boucardi* (P. L. Sclater)

A single ♂ of this race of *temporalis* was taken on *Cr. idoneus*, collected by the author at El Conejo, Magdalena, Colombia, May 22, 1945.

More than half of the measurements are practically the same, the only appreciable difference being in the width of the mesothorax which is .467 against .49, and of the abdomen, which is .71 × .586 against .759 × .605. The tip of the abdomen is of the same shape (very pointed); the scent glands are identical as well as the incrassations of the pleurites, while the genitalia are indistinguishable.

It is also interesting to note that the representatives of the genera listed below which are found on *Cr. boucardi* and *Cr. idoneus* are very closely related, with *H. temporalis* exactly the same. The genera are: *Austrokelloggia, Megapeostus, Rhopaloceras, Heptapsogaster mandibularis* and *H. inexpectatus.* This seems to me to be very conclusive proof that the two hosts are perhaps more closely related than Ornithologists have realized.

Heptapsogaster temporalis sinuensis new subspecies.

Fig. 13 b.

Types, male and female adults, from *Crypturellus noctivagus columbianus* [1] (SALVADORI) collected by the author at Socarré, Rio Sinú, April 13, 1949 (♂) and Nazaret, Dept. Córdoba, Colombia, Feb. 24, 1949 (♀) (in coll. U.S. Nat. Mus.)

Diagnosis.—This species is very close to *H. t. boucardi* (from *Cr. boucardi*). *H. temporalis* has not yet been taken on *Cr. idoneus,* but the specimens of *H. mandibularis* and *H. inexpectatus* found on *Cr. idoneus* are also very close to the specimens of those species found on *Cr. boucardi,* while they are identical with specimens taken on *Cr. noctivagus columbianus,* all very strong proof of the close relationships between *Cr. idoneus, columbianus, saltuarius* and *boucardi.* The parasites of this genus found on *Crypturellus cinnamomeus* are also very closely related to this group, *H. temporalis acutiventris* CLAY being very similiar to the present form. The only differences discernable between the present race and *H. t. boucardi* are the differences in measurements (as noted below) and the different shape and intensity of chitinization of the pleural incrassations (see figs.).

Footnote 1.—This is the latest decision on the systematic position of this species by WETMORE and PHELPS.

The male genitalia and genital plates in both sexes are exactly the same, the measurements for the genitalia being: paramers, .10 × .073 against .11 × .077 and endomera, .10 × .058 against .097 × .061. It is questionable whether or not these insects deserve subspecific recognition but it seems advisable to do so in view of the differences stated above. The measurements vary considerably between this form and *boucardi*, the head in both sexes being much narrower (♂ : .347 × .445 against .347 × .47; ♀ : .375 × 456 against .39 × .51). The prothorax is narrower in

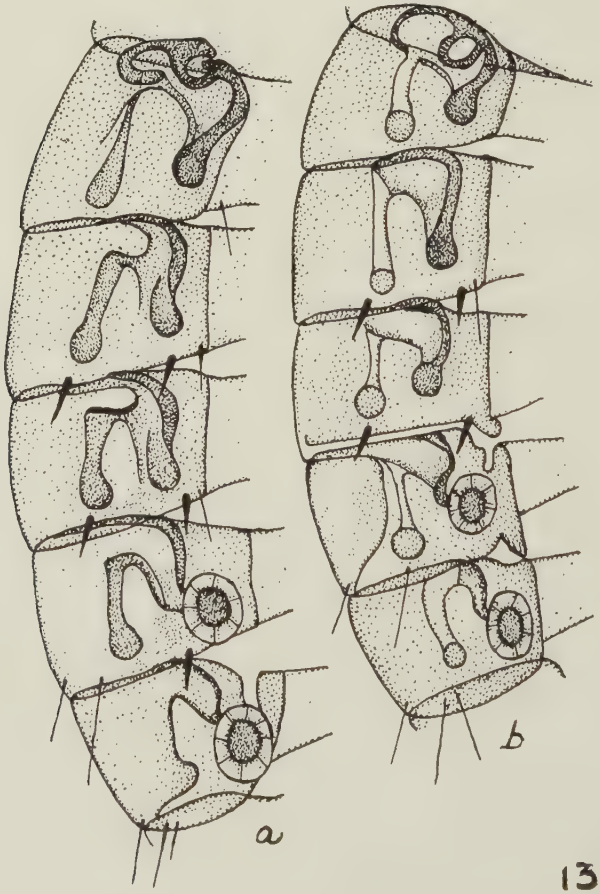


Fig. 13.—Pleurites I to V of ♂♂ of: (a) ***Heptapsogaster temporalis boucardi*** CARRIKER and (b) ***H. t. sinuensis*** n. subsp.

the male (.185 against .227); shorter and narrower in the female; the mesothorax much narrower in both sexes (.445 against .51, ♂; .45 against .52 in ♀. The abdomen is much smaller in both sexes (♂, .66 × .54 against .76 × .60; the ♀, .71 × .586 against .825 × .61. The remaining measurements are fairly close between the two forms, so that it does not seem necessary to give a complete table of measurements.

The species is described from the ♂ holotype and ♀ allotype, only.

Heptapsogaster temporalis brasiliensis new subspecies.

Figs. 14 and 15.

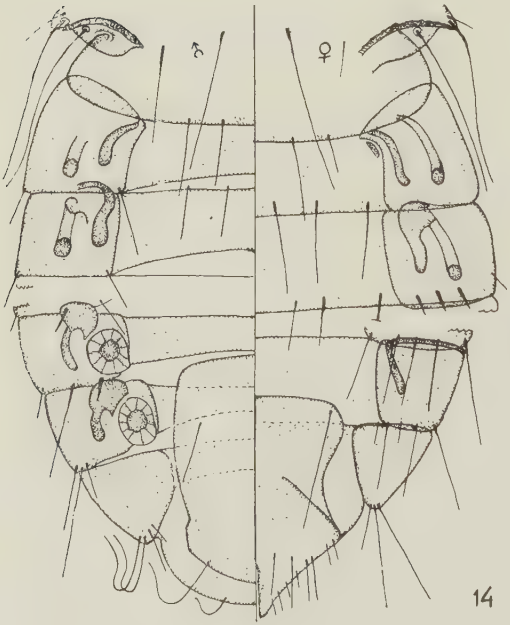
Types, male and female adults, from *Crypturellus o. obsoletus* (TEMMINCK), collected at Nueva Teutonia, Brazil, Sept. 20, 1938 (in coll. of G. H. E. HOPKINS).

Diagnosis.—As would be expected the race is close to *H. t. boliviensis* CARRIKER, from *Cr. obsoletus punensis*, but differs from that race in larger size, longer and wider temples (*frons* and occiput very nearly the same); prothorax same; mesothorax shorter and wider; metathorax much wider and longer and abdomen much longer and wider. This comparison is between the males of the two races, the female of *bolivianus* being unknown.

The scent glands are very similiar in size and structure, but in *brasiliensis* they extend beyond the edge of the pleurites posteriorly, while in *bolivianus* the pleurites extend beyond the glands. The incrassations of the pleurites are of the same type, but differ sligthly in detail. The male genitalia are also similiar in type, but the paramers are quite straight apically (not bent abruptly inward) and they are also more slender in median portion. In the figure of the ♂ genitalia of *boliviensis* published in 1944, page 162, there is an error in the shape of the basal portion of the paramers. They are shown as being narrower in basal portion than medially, but they are, in reality, almost as wide in basal portion as those of *brasiliensis* (see figures). The endomera of *brasiliensis* lacks the small lateral prongs at tip, while the penis is much longer. The sac at distal end, as shown in *brasiliensis*, is also present in *boliviensis*. The race is described from the ♂ holotype, ♀, allotype, 2 ♂♂ and 1 ♀ paratypes.

Measurements of the types:

		♂ length	♂ width	♀ length	♀ width
Body		1.12	—	1.32	—
Head	*frons*	—	.27	—	.326
	temples	.37	.48	.358	.50
	occiput	.282	—	.314	—
Prothorax		.11	.22	.11	.217
Mesothorax		.13	.445	.12	.467
Metathorax		.108	.42	.11	.412
Abdomen		.61	.54	.78	.564
Antennae		.195	.046	.157	.037
Paramers		.112	.077		
Endomera		.135	.056		



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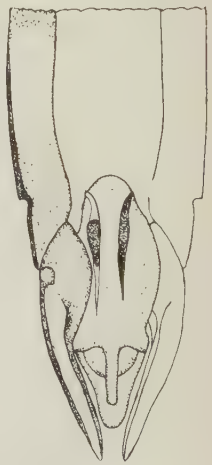

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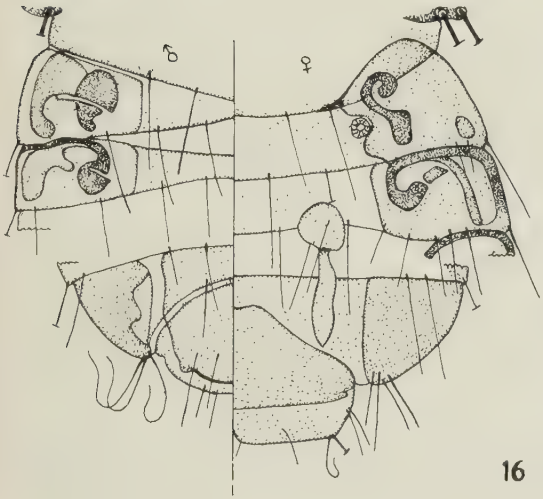
Figs. 14-15.—*Heptapsogaster temporalis brasiliensis* n. subsp.
(14) Metathorax and abdominal segments I, II, IV, V, VI and VII of ♂ and ♀
(15) ♂ genitalia

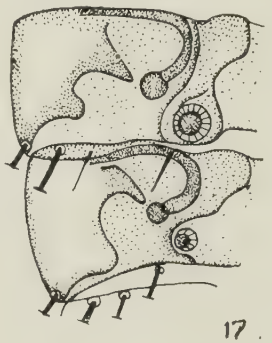
Heptapsogaster temporalis julius new subspecies.

Figs. 16, 17 and 18.

Types, male and female adults, from *Nothocercus julius* (BONAPARTE), collected by the author at Alto del Pozo, Santander N., Colombia, Sept. 17, 1946 (in coll. of the author).

Diagnosis.—Head of male slightly smaller than in *nothocercae*, but in female practically the same size; thoracic segment in male about the same, but wider in female; abdomen of male the





Figs. 16-18.—*Heptapsogaster temporalis julius* n. subsp.
(16) Metathorax and abdominal segments I, II, VI and VII of ♂ and ♀.
(17) Pleurites IV-V and scent glands of ♂
(18) ♂ genitalia.

same, in female larger. The posterior margin of the metathorax is uniformly convex in the female and pointed medially in the male, as in *nothocercae,* but extends only to the middle of first abdominal segment, not to its posterior margin as in *nothocercae.*

The apical abdominal segment of female is differently shaped (see fig.), as well as the genital sternite, the incrassations of the pleurites are sexually dimorphic as in *nothocercae*, but differ in shape; scent glands of same shape but considerably smaller.

The male genitalia is *much* smaller in *julius* (paramers: .056 × .036 against .076 × .054; endomera: .056 × 0.23 against .074 × .03), with the basal portion of the paramers and tip of endomera of distinct shape. The sides of the temples in the male, from antennary fossae to tip are slightly concave, and in the female convex, while they are straight in both sexes of *nothocercae.* The length of the paramers varies considerably in males from the same bird, ranging from .056 to .072. The subspecies is represented by the ♂ holotype, ♀ allotype, 4 ♂ ♂ and 10 ♀ ♀ paratypes and 1 ♂ and 3 ♀ ♀ from another individual of the same host taken above Bucaramanga, Santander S.

Measurements of the types:

	♂		♀	
	length	width	length	width
Body	.976	—	1.14	—
Head *frons*	—	.228	—	.326
Head temples	.303	.412	.347	.48
Head occiput	.26	—	.305	—
Prothorax	.12	.215	.125	.24
Mesothorax	.12	.423	.12	.48
Metathorax	.11	.38	.11	.43
Abdomen	.477	.445	.605	.575
Antennae	.195	.05	.175	.03
Paramers	.07	.036		
Endomera	.05	.023		

Heptapsogaster inexpectatus benii Carriker, 1944

Proc. U.S. Nat. Mus., vol. 95, N° 3180, p. 155 (Host: *Crypturellus soui inconspicuus* Carriker).

One ♂ and three ♀ ♀ from *Cr. soui caucae* (Chapmann), collected by the author at Simití, Bolívar, Colombia, March 30, 1947. These specimens are inseparable from the types of *benii*, in all details of both sexes. The race is easily recognized by the peculiar head markings and the genital plate of the female, as well as the shape of the apical segments of the abdomen in both sexes.

Heptapsogaster inexpectatus magdalenae Carriker, 1944

Proc. U.S. Nat. Mus., vol. 95, N° 3180, p. 156 (Host: *Crypturellus idoneus* (Todd)

One ♂ and four ♀ ♀ of *inexpectatus* were taken on two specimens of *Crypturellus columbianus* (Salvadori), collected by the author on the upper Sinú River, Colombia, April and Feb., 1949.

These specimens cannot be separated from the types of *H. i. magdalenae*. The measurements *all* fall within the limits of individual variation (.01 to .03 mm.), while the male genitalia are identical in structure, with only slight differences in measurements (paramers: .12 × .06 against .09 × .07; endomera: .097 × .027 against .11 × .033).

It serves no useful purpose to try and split up into subspecies these forms which are so much alike, and whose hosts are so closely related as in this case.

COMPSUS SERRANS N. SP., GORGOJO DAÑINO DE LA CAÑA DE AZUCAR EN VENEZUELA (APORTE 20 DE COLEOPTERA, CURCULIONIDAE)

por

GUILLERMO KUSCHEL [1]

ABSTRACT

COMPSUS SERRANS N. SP., A WEEVIL INJURIOUS TO SUGAR-CANE IN VENEZUELA. — The author describes in detail a new Curculionidae, *Compsus serrans* n. sp., probably parthenogenetic, which has been found as a pest of sugar-cane in Venezuela, explaining its relationship with other genera and the reasons for including the species in *Compsus*. Observations on the biology are given, being of special interest the fact that this is the first report of this group of weevils as feeders of Monocotyledoneae.

Ha aparecido sorpresivamente una nueva plaga seria en los cultivos de la caña de azúcar en Venezuela, causada por un gorgojo adelógnato de la subfamilia **Otiorhynchinae**. El gorgojo no sólo ha despertado interés por los cuantiosos daños que ocasiona, sino también por su posición sistemática, ya que viene a ser un miembro nuevo para la fauna sudamericana en la vecindad del género *Compsus* SCHÖNHERR. Por lo que hasta ahora se conoce del continente sudamericano, da la impresión como si más bien perteneciera a alguna de las islas del Mar Caribe. Es curioso también que una especie hoy abundante en regiones visitadas en tiempos pasados por coleccionistas y entomólogos, no haya sido descubierta mucho antes en Venezuela. Como no se conoce tam-

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poco de ninguna de esas islas, no se puede descartar la posibilidad de que en realidad se trate de un nuevo elemento propio a la fauna sudamericana.

Agradezco muy sinceramente al Dr. Pedro Guagliumi, entomólogo que se ocupa especialmente de las plagas de la caña de azúcar en Venezuela, la ocasión que me ofrece de estudiar este gorgojo y los valiosos datos que se sirvió comunicarme y que aproveché para completar este trabajo.

POSICION SISTEMATICA.—Ya se ha dado a entender que la nueva especie presenta caracteres propios que en cierto modo aún ponen en duda su pertenencia a la fauna sudamericana, pues no hay especies con las cuales se pueda relacionar. Si no se quiere crear un género aparte para ella, lo que tal vez sería lo más justo, puede incorporarse en *Compsus* Schönherr, pero con bastantes reservas. El carácter más significativo es la estructura peculiar de los cestillos de las tibias posteriores. Todas las especies de *Eutylus* Schönherr, *Brachyomus* Lacordaire, *Compsus* Schönherr, *Plococompsus* Marshall, *Exorides* Pascoe y *Xestogaster* Marshall poseen un peine dorsal menos ascendente que el peine interno, lo contrario sucede en *Compsus serrans* n. sp. Sólo *Exorides sulcicollis* (Kirsch) y *E. whymperi* (Olliff) hacen excepción, pues los dos peines llegan en ellos a la misma altura. Estas dos especies se apartan también de todas las demás por la base de los élitros no proclinada, sino vertical. Como la delimitación de los géneros arriba citados presenta a menudo serias dificultades, por las formas de transición y la inestabilidad de ciertos caracteres, prefiero no crear nuevas entidades genéricas hasta no someter todo el grupo a un examen más minucioso.

DESCRIPCION.

Compsus serrans n. sp.

♀. Tegumento negro de pez, rostro negro. Las escamas muy densas en todo el cuerpo, redondas, alargadas en las antenas y parte de los tarsos, imbricadas y finamente estriadas; de color blanco-grisáceo mate, el ápice del rostro, los costados y la faz inferior y las patas, sobre todo en la cara interna de éstas, con

Fig. 1. — *Compsus serrans* n. sp., hembra (dibujo algo contrastado).

cierto viso de verde metálico o cobrizo, en la 4ª interestría de los élitros hay una breve línea oscura en el medio del disco; con cerdas entre las escamas, recostadas en la faz superior, excepto en el tercio posterior de los élitros; todas las interestrías elitrales llevan una hilera de estas cerdas, aunque en las tres últimas son escasas desde la base hasta frente al 2º ventrito; una que otra de estas cerdas suele ser bífida; las de la parte media del declive miden 0,20 a 0,23 mm.

Cabeza con suave estrangulación detrás de los ojos, que también se nota en la faz dorsal; frente entre los ojos con suave convexidad transversal, sin foseta o punto central, pero hay una ligera indicación de un punto inmediatamente delante de la estrangulación. Los ojos poco convexos, sus facetas relativamente grandes, de aspecto granuloso.

Rostro subparalelo, apenas 1,1 vez más ancho en el ápice que delante de los ojos, muy corto, como 1,35 a 1,40 veces más corto (sin contar las mandíbulas) hasta el margen anterior de los ojos que su diámetro apical, y como 1,4 veces más ancho en el ápice que la frente entre los ojos. El dorso muy levemente impreso, sin surcos. Epístoma poco hundido, con 5 vibrisas (raras veces 4 ó 6) a cada lado. Mandíbulas sin escamas o con una que otra. Prementón con 1 a 3 pares de pelos. Faz inferior sin surco en el medio. Escroba ancha, poco profunda, sus márgenes no marcados, dirigida hacia la porción inferior de los ojos. El escapo alcanza al margen anterior del protórax, gradual y moderadamente ensanchado desde la base al ápice, recto. Funículo corto, sólo como 1,1 vez más largo que el escapo y como 1,4 veces más corto que el protórax; el 1.er artejo es como 1,17 a 1,25 veces más largo que el 2º; la maza es de largo variable, generalmente más de 1,6 veces más larga que ancha.

Protórax 1,14 a 1,16 veces más ancho que largo, los lados fuertemente redondeados, la mayor anchura en el tercio apical. El disco sin impresiones longitudinales, en el medio suele insinuarse un surco fino, hacia los lados aparecen muy suaves fosetas cubiertas por escamas, que son más o menos tan grandes como los puntos de las estrías elitrales. La región de los lóbulos oculares se ve en muy suave arco, sin vibrisas.

Escutelo escamoso, más o menos tan ancho como largo, no ensanchado en el ápice.

Elitros 1,42 a 1,52 veces más anchos que el protórax y 1,64 a 1,70 veces más largos (desde el margen anterior del escutelo hasta el ápice) que anchos; la base débilmente proclinada y ligeramente sinuosa, sin estrangulación o formación anular en la misma base; desde el ángulo basal hacia el callo humeral dilatados en línea recta; el ápice angostamente ojival, sin indicación de mucrones; el disco transversalmente convexo también en el medio; el declive poco acentuado. Las interestrías subplanas, hacia los lados ligeramente convexas, sin indicio de costas. Las estrías finas, sus puntos completamente cubiertos por escamas.

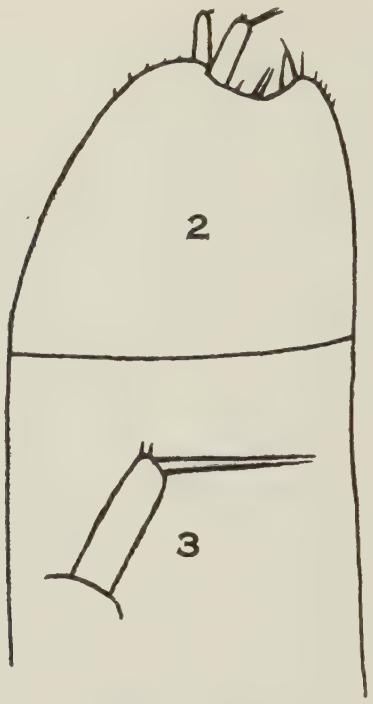
Prosterno muy breve delante de las coxas, el anillo apical es manifiesto sólo en el medio y pasa inmediatamente junto a las coxas; el proceso coxal posterior ligeramente tuberculiforme. Mesosterno suavemente descendente, su proceso intercoxal angosto. Metasterno de convexidad longitudinal suave, como 1,65 veces más largo entre las coxas que el diámetro de una coxa media; metepisterno más o menos paralelo, su sutura muy fina, escamosa y no hundida.

Precoxas inermes; mediicoxas con tuberculillo escamoso en la cara interna junto al ápice del proceso mesosternal. Fémures fuertemente hinchados, inermes. Las tibias con algunos dientecitos romos en el borde interno, las anteriores suavemente curvas, las demás rectas; la superficie tarsal escamosa; las posteriores con peine dorsal más ascendente que el peine interno. Tarsos angostos, el 2º postarsito como 1,3 veces más largo que ancho.

Coxitos como en fig. 2, comprimidos, con una escotadura en el ápice, bordeada de 6 cerdas largas dirigidas hacia los lados; los estilos largos, cilíndricos, provistos de 2 cerdas muy largas (fig. 3).

♂. Desconocido. (La especie se reproduce probablemente por partenogénesis.)

DISTRIBUCION GEOGRAFICA.—*VENEZUELA:* Aragua, El Consejo, 500 m., 40 ♀ ♀ de junio 1955, en caña de azúcar, L. Arnal y P. Guagliumi leg.; Maracay, 2 ♀ ♀ de junio y julio 1936, P.



Figuras 2 y 3.
Compsus serrans n. sp., coxito de la hembra, vista lateral del lado izquierdo (fig. 2); estilo izquierdo, vista dorsal (fig. 3).

Vogl leg. Según comunicación del Dr. Guagliumi se encuentra también cerca de Barquisimeto, en el Valle del Río Turbio, y en Chivacoa, en el Valle del Río Yaracuy. "Las tres zonas son de extenso cultivo de caña, pero con mucha vegetación autóctona y bosques en la cercanía."

TIPOS.—Holótipo (♀) y parátipos en la colección del autor, otros parátipos en las colecciones de Venezuela, en el Museo de Munich, en el Museo Británico y en el U. S. National Museum.

LOCALIDAD DEL TIPO.—El Consejo, Aragua, Venezuela.

OBSERVACIONES.—Se distingue de todas las demás especies de *Compsus* Schönherr y géneros afines por carecer hasta de indicios de costas elitrales y, sobre todo, por el peine interno de las postibias menos ascendente que el peine dorsal.

BIOLOGIA.—Las plantas huéspedes, según el orden de preferencia de los insectos adultos, son *Saccharum officinarum* (caña de azúcar), *Panicum purpurascens* (hierba pará) y *Panicum maximum* (gamelote). Los gorgojos se alimentan de la lámina de las hojas, atacándolas por el borde y haciendo entradas semicirculares semejantes a las de la hormiga podadora *Atta sexdens* (bachaco). Las láminas aparecen entonces con los márgenes aserrados, lo que ha motivado el nombre de "gorgojo aserruchador o gorgojo serrucho", con que se conoce en Venezuela. La destrucción de la lámina puede ser total, con excepción del nervio medio. Los daños causados en esta forma son severos, pues una revisión de varias hectáreas de plantaciones de caña ha registrado un ataque del 95 % de los cogollos, con un promedio de 2,3 gorgojos por ejemplar.

Los huevos son depositados por grupos en los detritos vegetales, a veces en el mismo suelo. No se han observado los hábitos de las larvas, su búsqueda en los tallos ha resultado hasta ahora siempre infructuosa. Los adultos salen de noche, quedando en el día ocultos en los cogollos de la caña o en los pastos.

Estas referencias, que se basan en las comunicaciones suministradas por el Dr. Pedro Guagliumi, no carecen de interés, pues indican a las claras que los Curculiónidos adelógnatos pueden encontrarse también en Monocotiledóneas, y no exclusivamente en Dicotiledóneas como se cree muchas veces. Los pocos datos que se tienen hasta el momento revelan que los adultos de *Compsus* pueden alimentarse de Malváceas, Rutáceas, Vitáceas, Leguminosas y Aquifoliáceas. Es, por lo tanto, una novedad de enorme interés que *Compsus serrans* se alimente de Gramíneas, lo que implica un cambio fisiológico de consideración gracias a la estructura generalmente silícica de las láminas de estas plantas. Es sabido que los Curculiónidos adelógnatos no están ceñidos de ordinario a una planta determinada, sino que su régimen alimenticio es bastante variado dentro de las Dicotiledóneas. Las larvas de este grupo de gorgojos se hallan, salvo muy raras excepciones, a cierta profundidad en la tierra, son ectófitas, esto es, libres, y se alimentan de las raíces.

Figura 4. Daño característico (inicial) de *Compsus serrans n. sp.*, en plantilla de caña.

HALLAZGO EN NEUMATICOS PARA AUTOMOVILES Y DEPOSITOS DOMESTICOS DE *HAEMAGOGUS SPLENDENS* WILLISTON, 1896

por

Pablo Cova García y Octavio M. Suárez [1]

Abstract

THE FINDING OF *HAEMAGOGUS SPLENDES* Williston, 1896 IN AUTOMOBILE TIRES AND DOMESTIC WATER TANKS.—The authors report the finding of larvae of *H. splendens* in discarded automobile tires and domestic water storage tanks and comment on the possibility of the species adaptation to urban zones.

En sus inspecciones rutinarias, una de las cuadrillas del Servicio de Fiebre Amarilla dependiente de la División de Malariología, que hace el levantamiento de los índices aedinos en el Estado Sucre, encontró en la población de "El Rincón", en neumáticos para automóviles, usados por los habitantes como protección para algunos arbustos que mantienen en los patios de sus casas, muchas larvas que le llamaron la atención. Posteriormente a este hallazgo el Sr. J. A. López, encargado de dicha Zona, y el Sr. Juan Velázquez, Inspector, hicieron nuevas pescas de larvas y las pusieron a desarrollar obteniendo varios adultos hembras y machos, que fueron clasificados por nosotros como pertenecientes a la especie *Haemagogus splendens* Williston, 1896.

1() De la División de Malariología. Dirección de Salud Pública. Ministerio de Sanidad y Asistencia Social.

Tipos de criaderos donde con frecuencia se encontraron larvas de *H. splendens* WILLISTON, 1896.

Este mismo material fué remitido al Dr. J. Lane, Profesor adjunto del Departamento de Parasitología de la Facultad de Higiene y Salud Pública en la Universidad de Sao Paulo, Brasil, y en carta de fecha 31 de diciembre de 1955 confirmó nuestra clasificación.

El Rincón es la capital del Municipio del mismo nombre y forma parte del Distrito Benítez en el Estado Sucre. Esta pequeña población tiene aproximadamente unos 3.000 habitantes, y está situada en el centro de una región de haciendas de café y cacao.

SUMARIO

Por creer de importancia el hecho de haber encontrado en este lugar a *H. splendens*, en neumáticos para automóviles y en depósitos domésticos, es que hacemos la presente nota, ya que nos hace pensar que quizás en esta especie se esté realizando un cambio en sus hábitos de vida y se encuentre en pleno proceso de adaptación urbana.

SUMMARY

The fact that larvae of *H. splendens* were found in this locality, in the water collected inside of discarded automobile tires and domestic water storage tanks, has led the authors to write this note as they feel it is important because it shows that *H. splendens* might be changing its habits and going through the process of becoming adapted to the urban zone.

HANS RICHTER 1869-1920.

Hans Richter nació en el año 1869 en Caracas, hijo de padres alemanes. Desde temprana edad mostró predilección por la Entomología y por la música.

Fué enviado por sus padres a Hamburgo a estudiar administración comercial, no retornando más a Venezuela. Después de una larga estada en Alemania se radicó en Buenos Aires donde falleció en el año 1920. Trabajó en Entomología, publicando varios estudios científicos sobre *Dilobodérus* y *Dysticus*.

Beitrag zur Kenntnis der argentinischen Kafer.

Ein Wasserbaukünstler. (Zeitschrift des Deutschen Wissenschaftlichen Vereins zur Kultur=und Landeskunde Argentiniens. Cuaderno 4, año 1919, Buenos Aires.

Enrique G. Vogelsang.